

REMARKS

Favorable reconsideration of the present application is respectfully requested.

New Claim 5 corresponds to Claim 1 but further recites introducing heat while reducing the pressure to maintain the temperature of the casting substantially unchanged. Basis for this is found at page 8, lines 20-22.

Applicants wish to thank Examiner Morillo for the courtesy of an interview on April 6, 2006 at which time the outstanding rejection was discussed. Although no explicit agreement was reached at that time, the Examiner indicated that the outstanding rejection would be reconsidered in light of the discussion held at that time, as summarized in the following comments.

As was discussed during the interview, it has been known to carry out solution treatment of a cast of aluminum alloy cast product simultaneous with an HIP treatment (paragraph bridging pages 2-3). However this introduces the problem that when the pressure is reduced at the termination of the HIP treatment, the resulting cooling can cause an undesirable drop in the temperature of the casting which is simultaneously undergoing solution heat treatment. Thus, in the absence of steps to maintain the temperature of the aluminum alloy casting, the pressure reduction at the end of the HIP treatment will also reduce the temperature of the casting (page 3, lines 5-10).

The present invention therefore provides that a method for reforming mechanical characteristics of an aluminum alloy casting by subjecting the casting to the action of temperature and pressure (e.g., HIP) includes a step of reducing the pressure while maintaining the temperature of the casting. For example, this may be done by heating using a heater in the HIP apparatus (paragraph bridging pages 8-9), by covering the workpiece with a heat resistance porous insulator (page 9, lines 2-7) or by maintaining the casting in the interior of a heat insulating structure (Fig. 6).

Claims 1 and 2 were rejected under 35 U.S.C. § 102 as being anticipated by Clark (U.S. patent 6,046,477). The Examiner there noted that the HIP temperature is about the same as the solution heat treatment temperature in Clark, so that the HIP temperature would be maintained in the subsequent solution treatment. However, as explained during the interview, this fails to take into account the cooling due to the pressure reduction. Clark provides no teaching of steps to maintain the temperature of the product during the pressure reduction at the end of the HIP treatment step. Thus, the fact that the HIP treatment and the solution heat treatment are performed at substantially the same temperature does not inherently mean that the treated product will not undergo cooling between the HIP step and the subsequent heat treatment steps. Since there is no explicit or inherent teaching in Clark of “reducing the pressure while maintaining the temperature of the” treated casting, Applicants respectfully submit that Claims 1 and 2 define over Clark.

Claims 3 and 4 further recite that the casting is accommodated in a heat insulating structure or covered with a heat resistant porous heat insulator during the high temperature/high pressure treatment and the solution treatment. Claims 3 and 4 were rejected under 35 U.S.C. § 103 as being obvious over Clark in view of the ASM Handbook article which describes an autoclaving furnace. According to the Office Action, the Examiner considers the autoclave to comprise the heat insulating structure or the heat resistant porous heat insulator. However, not only does the ASM Handbook fail to suggest maintaining the temperature of the product in Clark when the pressure is reduced at the termination of the HIP treatment, but there is no evidence that the autoclave of the ASM Handbook is porous. Claims 3 and 4 therefore define over any combination of the above references.

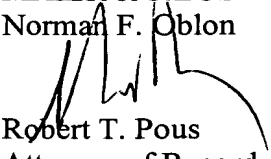
New Claim 5 also recites maintaining the temperature of the casting while reducing the pressure, but further recites simultaneously introducing heat for this purpose. There is no teaching of this step in the cited prior art.

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Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early notice of allowability.

Respectfully submitted,

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